# *Flight Information Services Data Link (FISDL) through FAA-Industry Agreements*

**NASA Integrated CNS Workshop**

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# FISDL Background

- 1993-97 FAA DemVal using Mode S data link capability.
  - Conducted ground evaluations, flight tests, human factors studies, and developed a unique data compression algorithm for complex weather images
  - Evaluation Results: "...the services offer a significant potential for improvements in the safety and utility of GA operations..."
- Subsequent decision not to implement - Mode S frequency congestion concerns
- No FAA plan for FIS data link until late in NAS Architecture upgrade

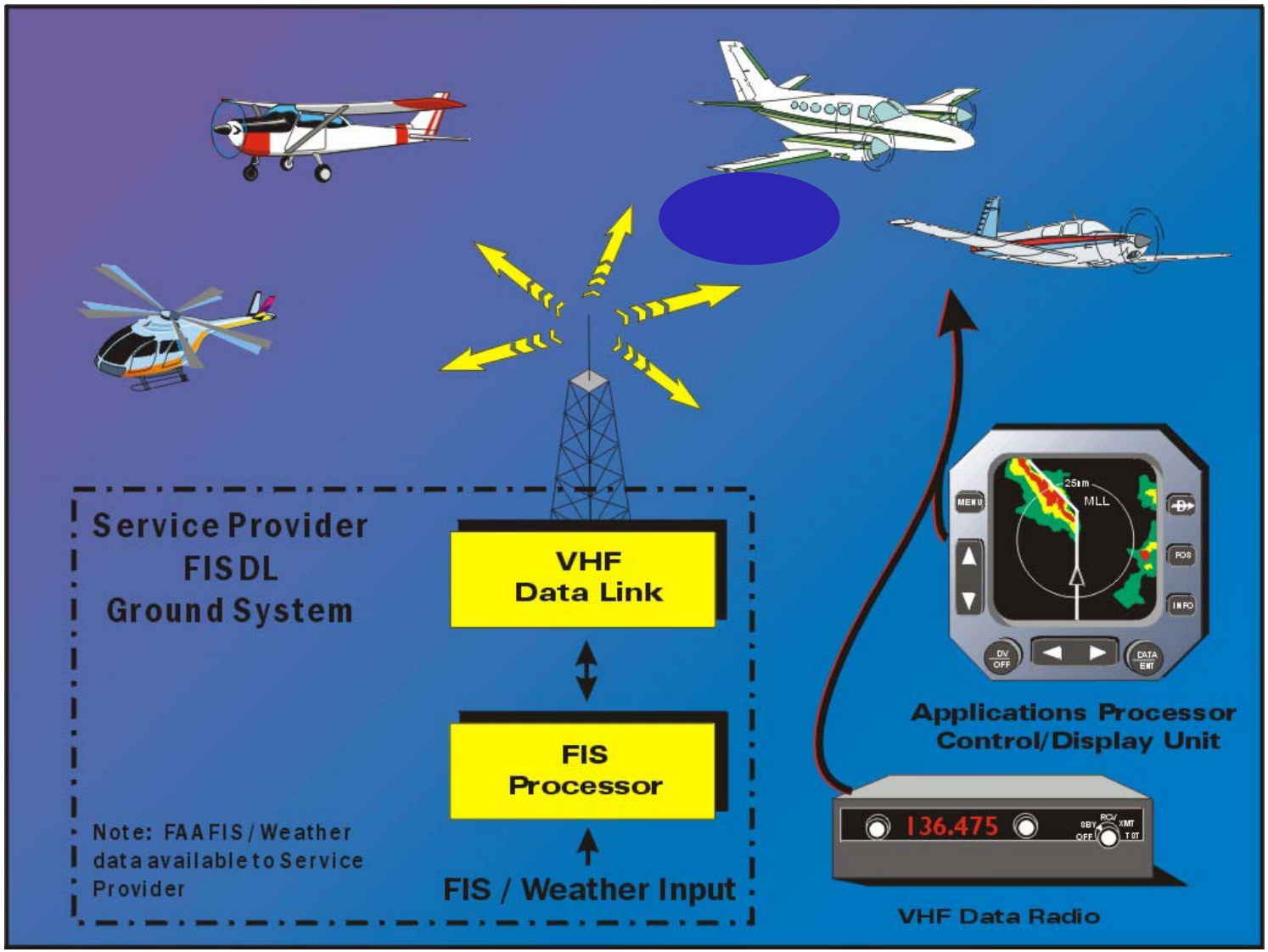
# FIS Policy Implementation

- FAA published Airborne FIS Policy Statement based on industry petition through the GA Coalition:

  ***The FAA's goal "… is to use digital data link to deliver information to the pilot … and will use the private sector's FIS capabilities … to bring FIS services and products to the market place quickly and efficiently."***

- FAA signed Government-Industry Project Performance Agreements (G-IPPAs) with two FISDL Service Providers
  - ARNAV Systems, Inc; Puyallup, WA
  - Honeywell International, Inc; Olathe, KS (formerly NavRadio/Allied Signal)
- FAA Sponsors:
  - ARW-100: Weather Policy and Requirements Division
  - AFS-410: Flight Standards

# Flight Information Services Data Link (FISDL) System Overview



# FISDL Cockpit Display

# Unique G-IPPA Provisions

- Competitive strategy with two FISDL Service Providers designed to use "market pressure" to stimulate and control quality and cost of FISDL services

- No system specifications; rather based on:
  - FAA Statement of Objectives, and
  - Statement of Work (SOW) submitted by ARNAV and Honeywell

- FAA provides access to 4 VHF channels (136 MHz "protected" spectrum)

- ARNAV and Honeywell each provide independent system infrastructure and service at no cost to FAA

# Key Provisions: *FAA Commitments*

- Five year agreement with opportunity for renewal
  - Access to 4 VHF channels (136 MHz "protected" spectrum) with spectrum engineering support
  - Access to FIS/Wx data within FAA systems; these data are also available to all other vendors as well
- Publish ACs, other publications, and necessary standards
- Sponsor studies to develop applications/benefits & NAS changes
- Evaluate implementation of GA Automet (TAMDAR / E-PIREPs)
  - Includes evaluation/validation of operations concepts and procedures for national deployment of downlink and possible crosslink of aircraft derived weather data from commuter, and low-altitude general aviation operations

# Key Provisions:
## *FISDL Service Provider Commitments*

- System infrastructure and service at no cost to FAA
  - Full national coverage (CONUS + Hawaii; Alaska Optional)
    - Access from at least 5000’ to 17,500’; sfc to 45,000’ desired

- Products designed for aviation use and based on approved data sources
  - Conform to guidelines (ICAO, RTCA, SAE G10) for cockpit display
  - Basic products at no fee (METAR/SPECI, TAF/AMEND TAF, SIGMET, Conv SIGMET, AIRMET, PIREPs, Alert Wx Watches)
  - Valued-added products for fee

- Education/training materials for pilot users and FAA

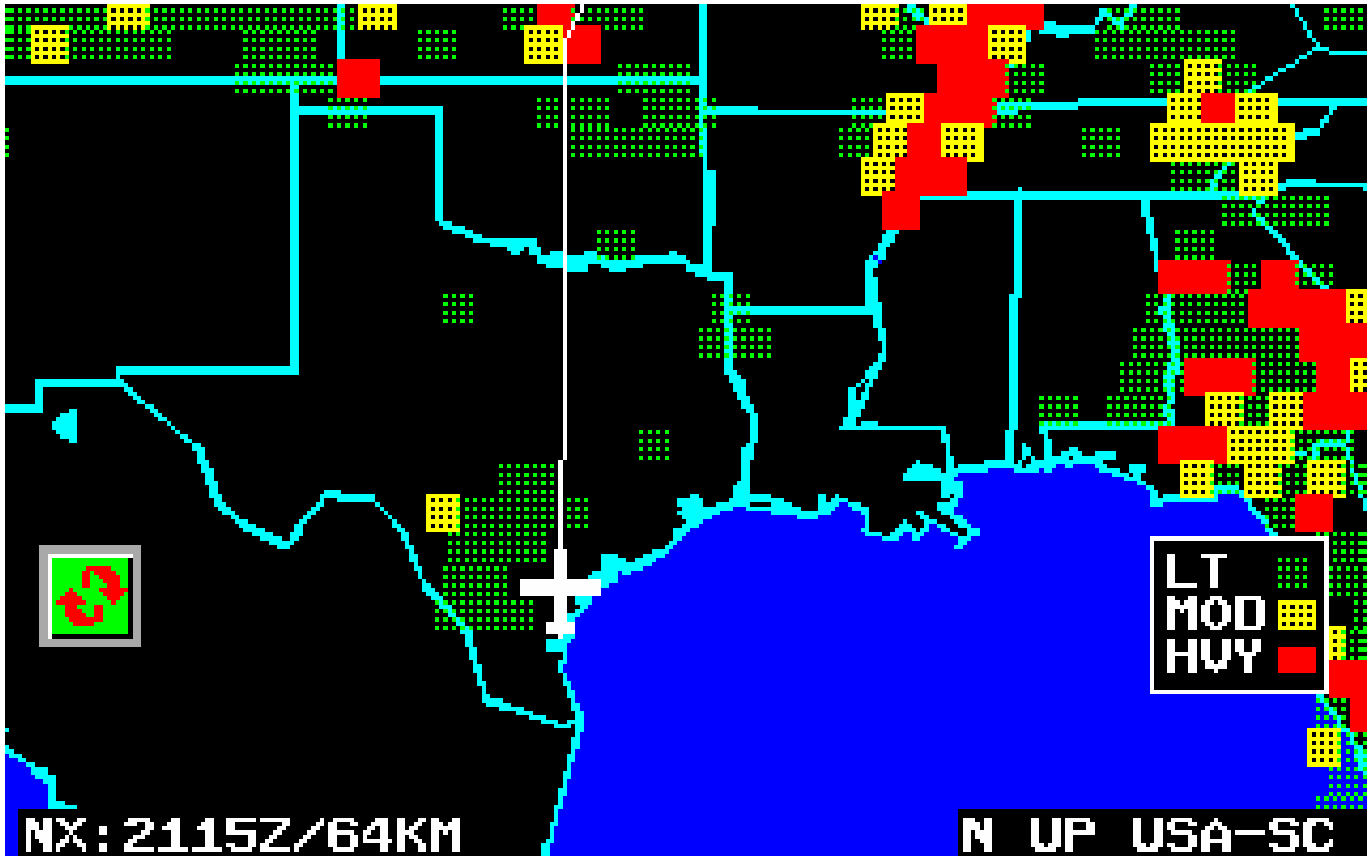
- Archive all broadcast transmissions for at least 15 days

- Quality assurance that addresses system risks and user concerns

# Implementation Status

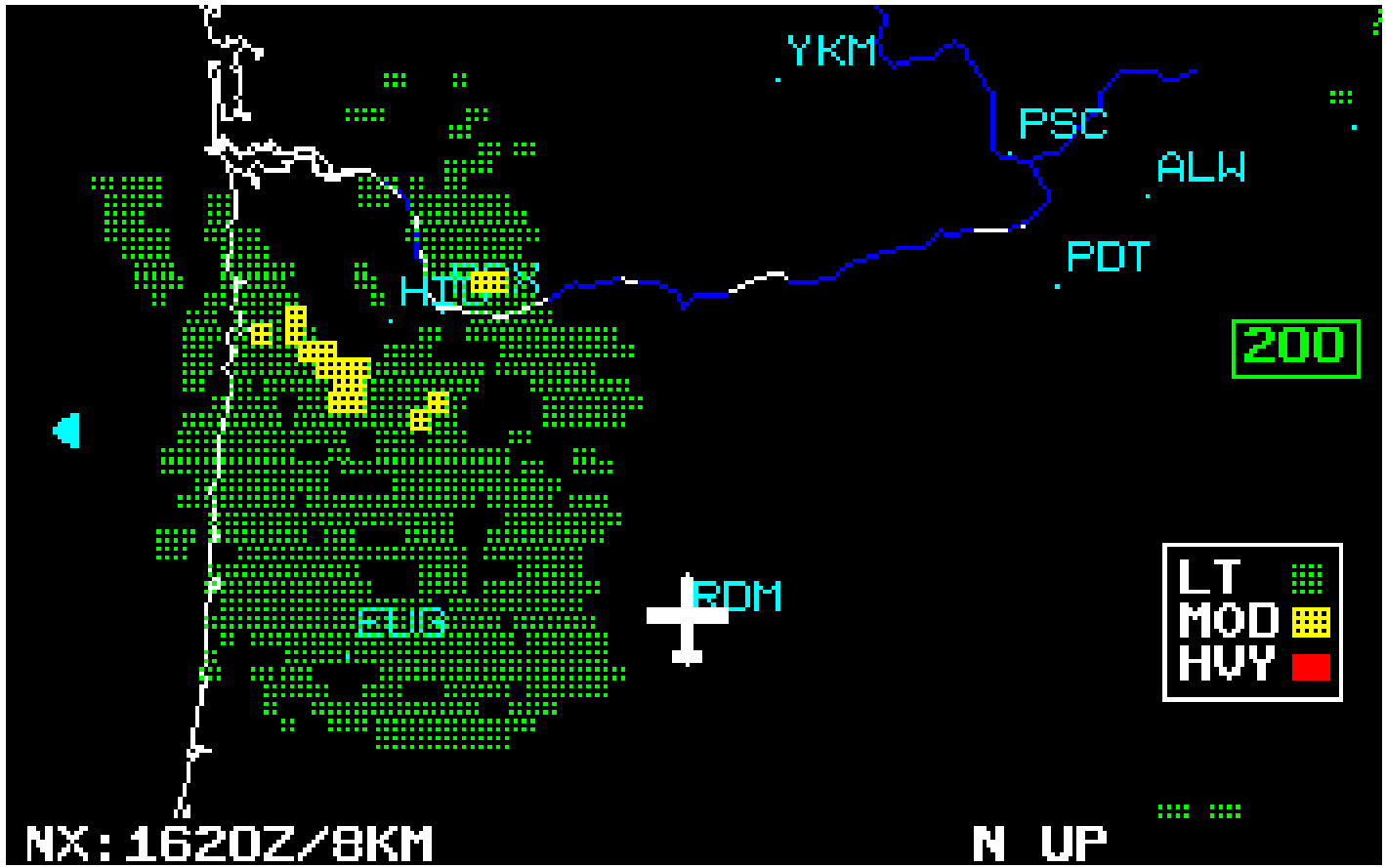
- Product review/approval procedures for value-added FISDL products established
  - ARW-200 (Weather Standards) Team Lead
  - Initial products (ARNAV and Honeywell) have been reviewed and accepted
- AIM Revision including FISDL overview in Section 7 published
- Advisory Circulars drafted by Flight Standards and Aircraft Certification
- FIS-B MASPS published by RTCA/SC-195
  - DO-267, March 27, 2001
  - Provides communications protocols and presentation guidelines for FIS digital broadcast and cockpit display
- ARNAV achieved operational status with GMSK data radio technology (July 2000)
  - TSO and STC have been issued
- Honeywell developing VDL Mode 2 data radio technology.
  - IOC of ground system scheduled for June 2001
  - Radio certification by 4$^{th}$ Quarter 2001

# FISDL Examples - ARNAV




Regional NEXRAD

# FISDL Examples - ARNAV




200 Nautical Mile NEXRAD

# FISDL Examples - ARNAV


Full Text METAR Report